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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,854

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Sung-Su Jung

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EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/699,854	Applicant(s) JUNG ET AL.	
	Examiner Jimmy Lin	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☒ Claim(s) 10 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 10 and 15 are objected to because of the following informalities: the recitation of “an flat upper surface” should be changed to “a flat upper surface”. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant’s admitted prior art (hereafter, AAPA) in view of Onuma (JP 05-345160).

AAPA teaches that an aligning substrate can be used to adjust the gap between the substrate and a plurality of syringes when making a LCD. The height of the aligning substrate is the same as that of the substrate. The aligning substrate is loaded onto a table, and the syringes are lowered so that the nozzles just come into contact with the surface of the aligning substrate. The nozzles are raised to a predetermined height above the surface of the aligning substrate to thereby obtain a desired gap between the aligning substrate and the syringes. Then the aligning substrate is unloaded, a LCD substrate is loaded on the table, and a seal pattern is formed on the LCD substrate [0016]. The table can be moved in the left/right and forward/backward directions [0013]. AAPA teaches that an image camera can be used to detect the alignment patterns on the aligning substrate and that the position of the syringes is aligned according to the image [0016].

AAPA does not explicitly teach that the aligning substrate can be attached to a side surface of the table and that the table can be moved to position the syringe over the substrate from the aligning substrate to dispense the sealant. However, Onuma teaches a method of forming a desired gap prior to forming a sealant layer on a LCD substrate. An aligning substrate 6 is used to acquire the desired gap. The nozzle can contact the aligning substrate while the LCD substrate is loaded on the table. Onuma reasonably teaches the use of a fixed aligning substrate that is not required to be loaded/unloaded on the table. It would have been obvious to one of

ordinary skill in the art at the time of invention to have provided a fixed aligning substrate in the method of AAPA with a reasonable expectation of success because Onuma teaches that such a method of aligning was operable in the LCD deposition art.

Onuma displays in Fig. 4 that the aligning substrate 6 is positioned close to a table on which the substrate 2 is placed, but does not explicitly teach that the aligning substrate is attached to a side surface of the table. However, the nozzle contacts the aligning substrate while the LCD substrate has been loaded onto the table, so the table must be moved so that the position of the nozzle can be moved from the aligning substrate to the LCD substrate. The distance that the table must move can be reduced as the aligning substrate is positioned closer to the table, thereby increasing productivity. Attaching the aligning substrate to the table would allow for the smallest distance between the nozzle and the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have attached the aligning substrate to the table in the method of Onuma with a reasonable expectation of success. One would have been motivated to do so in order to have increased productivity.

4. Claims 10-11 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 and Yamazaki et al. (U.S. Patent No. 6,175,395).

AAPA and Onuma are discussed above.

AAPA does not explicitly teach that the upper surface of the substrate is flat. However, AAPA does teach that sealant is formed over an orientation film. Accordingly, Yamazaki teaches that it well to have formed an orientation film to be flat (col. 10, lines 18-20). Because Yamazaki teaches that such film formations were operable in the art, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the orientation film of AAPA to be flat with a reasonable expectation of success.

Claim 15: AAPA teaches that an image camera can be used to detect the alignment patterns on the aligning substrate and that the position of the syringes is aligned according to the image [0016].

Claim 16: AAPA does not explicitly teach cleaning the aligning substrate after the syringes are raised to have a desired gap between the aligning substrate and the nozzles. However, cleaning the aligning substrate would have extended the life and use of the aligning

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substrate. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have cleaned the aligning substrate. One would have been motivated to do so in order to have extended the lifetime of the aligning substrate and to have reduced production costs.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 and Yamazaki '395 as applied to claim 10 above, in view of Hashimoto et al. (U.S. Publication No. 2001/0013920).

AAPA and Onuma are discussed above, but do not explicitly teach that the dispensing includes dispensing of a liquid crystal. However, Hashimoto teaches that dispensing liquid crystal from a syringe is well known in the art [0050]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have dispensed liquid crystals from the syringe of AAPA with a reasonable expectation of success because Hashimoto teaches that syringes are operable for dispensing such materials onto an LCD substrate.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 and Yamazaki '395 as applied to claim 10 above, in view of Hashimoto et al. (U.S. Publication No. 2003/0083203).

AAPA and Onuma are discussed above, but do not explicitly teach that silver is dispensed from the syringe. However, Hashimoto '203 teaches that conductive fine particles, such as silver, can be dropped onto an LCD substrate from a nozzle [0102]-[0104]. The silver is dropped on the outer edges of the image display to prevent breaks and short circuits ([0191]-0195]; Fig. 8). AAPA teaches that materials can be deposited onto an LCD substrate by dropping the materials through the nozzle of a syringe. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have connected the upper and lower substrates of AAPA using the silver dots of Hashimoto '203 in order to have prevented breaks and short circuits. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have dropped the silver dots onto the LCD substrate using the syringe of AAPA because AAPA teaches that such syringes have nozzles that are operable for dropping material onto an LCD substrate. The selection of something based on its known suitability for its

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intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 as applied to claim 14 above, in view of Liu (U.S. Publication No. 2002/0123210).

AAPA does not explicitly teach that the aligning substrate can be made of glass. However, Liu teachings that it was well known for a dummy substrate to be made of a variety of materials, including glass [0041]. Because Liu teaches that such materials of construction were operable for dummy substrates, it would have been obvious to one of ordinary skill in the art at the time of invention to have made the aligning substrate (i.e., dummy substrate) of AAPA from a glass material with a reasonable expectation of success.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 and Yamazaki '395 as applied to claim 10 above, in view of Liu '210 for substantially the same reasons discussed immediately above.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 10-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19 and 23 of copending Application No. 10/824585 in view of Hashimoto '920, AAPA, and Yamazaki '395. Claim 19 of '585 is directed to forming a seal pattern with a syringe and claim 23 of '585 is directed to contacting an alignment plate attached to a table in order to form a desired gap between the nozzle and alignment plate. Claim 10 of the present application is merely a combination of claims 19 and 23 of '585, except that it does not limit the deposition of the sealant onto an LCD substrate, the height of the aligning substrate to be the same as that of the substrate, or the substrate having a flat upper surface.

Hashimoto '920 teaches that it was well known to use a dispenser method to form a sealant onto an LCD substrate (abstract; [0046]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the claimed method of '585 to form a sealant on an LCD substrate because Hashimoto '920 teaches that using a dispenser (i.e., a syringe) to form a sealant layer is operable for forming an LCD substrate.

AAPA teaches that it was well known to set the height of the aligning substrate to be the same as that of the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have set the height of the aligning substrate to be the same as that of the substrate in the claimed method of '585.

Yamazaki teaches that a flat orientation film can be formed in the pixel region to improve the orientation of the liquid crystal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed a flat orientation film on the claimed LCD substrate of '585 with a reasonable expectation of success. One would have been motivated to do so in order to have improved the orientation of the liquid crystal.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claim 17 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19 and 23 of copending Application No. 10/824585 in view of Hashimoto '920, AAPA, Yamazaki '395, and Liu '210.

The claims of '585 do not require that the aligning substrate to be made of glass. However, Liu teachings that it was well known for a dummy substrate to be made of a variety of materials, including glass [0041]. Because Liu teaches that such materials of construction were operable for dummy substrates, it would have been obvious to one of ordinary skill in the art at the time of invention to have made the aligning substrate (i.e., dummy substrate) of '585 from a glass material with a reasonable expectation of success.

Response to Arguments

12. Applicant's arguments filed 7/1/2008 have been fully considered but they are not persuasive.

Applicant argues on pg. 7 that the substrate surface of Onuma is not flat such that the height of the nozzle is different over the whole area of the substrate and, thus, Onuma does not teach or suggest at least "wherein the substrate having an flat upper surface and the height of the upper surface of the aligning substrate is same as that of the substrate so that the syringe is raised at the set height from the surface of the aligning substrate and the height of the syringe is constant over the whole area of the substrate". However, Onuma is only used to teach the use of a fixed aligning substrate, as opposed to one that is required to be loaded/unloaded from a table, was known in the art. AAPA would have suggested the deposition of liquid crystal on an orientation layer and Yamazaki teaches that it was well known to have used a flat orientation layer in an LCD substrate.

Applicant argues on pg. 8 that AAPA merely discloses that an alignment pattern is formed onto the substrate on the table while the claimed invention requires the alignment pattern to be formed on the alignment substrate, not the substrate. However, AAPA explicitly teaches "[t]o align the syringes 402A~402C, the sealant is applied on the dummy substrate 401 through nozzles 403A~403C to form a vertically crossing seal pattern, and then an image of the seal pattern is detected with the image cameras 404A~404C provided at the syringes 402A~402C to check the alignment state and the position of the syringes 402A~402C is compensated" [0016].

The dummy substrate of AAPA correlates to the claimed alignment substrate. Thus, AAPA clearly teaches that an alignment pattern is formed on the alignment substrate.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Jimmy Lin/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792